Soil Appendix 1

Formulas and assumptions used to calculate existing and predicted project soil disturbance.

Existing Disturbance Calculations

- Linear disturbances from Google Earth Imagery (1992, 1998, 2011) and NAIP Imagery 2011 - identified areas labelled as "skid trail" --- Acres of soil disturbance = miles*2.0 (Acres calculation based on assumption that disturbance is between skid trail and temp road width)
- Past harvest disturbance (all harvest included in the past 30 years). Past Harvest >3 years old, entered as 1/2 the original acreage Linear disturbances are still counted.)
    - Past tractor harvest --- Acres of soil disturbance = acres of past tractor harvest * 5%
    - Past skyline harvest --- Acres of soil disturbance = acres of past skyline harvest * 2%
    - Past helicopter harvest --- Acres of soil disturbance = acres of past helicopter harvest * 1%
- Fire disturbance (soil disturbance estimates based on monitoring completed on recent fires on forest -- USFS 2015)
    - Low burn severity --- Acres of soil disturbance =acres of unit in low burn severity * 2.5%
    - Moderate burn severity --- Acres of soil disturbance =acres of unit in moderate burn severity * 7%
    - High burn severity --- Acres of soil disturbance =acres of unit in high burn severity * 9%
- **Existing soil disturbance = sum of soil disturbance from all past disturbance history (skid trails, past harvest, burn severity)**

New disturbance calculations and assumptions

- New harvest disturbance (Activity soil disturbance)
    - Tractor harvest --- Acres of soil disturbance = acres of tractor harvest * 10%
    - Skyline harvest --- Acres of soil disturbance = acres of skyline harvest * 4%
    - Helicopter harvest --- Acres of soil disturbance = acres of helicopter harvest * 2%
- Temp road/swing trail soil disturbance --- Acres of soil disturbance = Miles of temp road/ swing trail * 3.0 (Only counted soil disturbance inside Unit)

Calculations of detrimental disturbance are made with the following equations:

- Cumulative soil disturbance = Existing soil disturbance + Mitigated Project soil disturbance

Calculations of reduction in soil disturbance from Design Criteria

- Reuse soil disturbance =Acres Preexisting Skid Road
- Rehab soil disturbance = (0.5*AcresTempRoad Inside Unit)+(0.5*Acres New Skid Trail))+(0.9*Cable/Skyline Trail)

- Mitigate Project soil disturbance= Project soil disturbance-(Reuse soil disturbance + Rehab soil disturbance)

Road Widths

- Temp roads = 25 feet wide
- 1 mile temp road = 3.0 ac
- Skid trail(and Skyline) = 15 feet wide
- 1 mile skid trail = 1.8 ac